

FIG.2

POI TABLE 1011

10112	10113	10114	10115	10116	10117	10118
POI ID	CATEGORY ID	AREA CODE	COORDINATE VALUES	NAME	ADDRESS	TELEPHONE NUMBER
0001	002	01	(x1, y1)	OOBANK	HOKKAI-DO **CITY**	*****
0002	003	02	(x2, y2)	RESTAURANT x x	AOMORI-KEN **CITY**	*****
0003	001	03	(x3, y3)	△△DEPARTMENT STORE	AKITA-KEN **COUNTY	*****
:	:	:	:	:	:	:
:	:	:	:	:	:	:

10111

3/30
FIG.3

CATEGORY TABLE 1012

10122 CATEGORY ID	10123 CATEGORY NAME
001	DEPARTMENT STORE
002	RESTAURANT
003	BANK
⋮	⋮

10121

FIG.4

AREA CODE TABLE 1013

10132 AREA CODE	10133 AREA NAME
001	HOKKAI-DO
002	AOMORI-KEN
003	AKITA-KEN
⋮	⋮

10131

FIG.5

ROAD TABLE 1021

10212 ROAD ID	10213 ROAD CATEGORY ID	10214 LINK ID	10215 COORDINATE VALUE STRING	10216 NAME
001	02	{0001,0002,...,****}	{(x0001,y0001),..., (x****,y****)}	ROUTE NO. 16
002	03	{0005,0006,...,****}	{(x0005,y0005),..., (x****,y****)}	BELT LINE NO. 7
003	01	{0100,0101,...,****}	{(x0100,y0100),..., (x****,y****)}	TOMEI EXPRESSWAY
⋮ ⋮ ⋮ ⋮	⋮ ⋮ ⋮ ⋮	⋮ ⋮ ⋮ ⋮	⋮ ⋮ ⋮ ⋮	⋮ ⋮ ⋮ ⋮

ROAD CATEGORY TABLE 1022

10222 ROAD CATEGORY ID	10223 CATEGORY NAME	10221
01	EXPRESSWAY	
02	NATIONAL HIGHWAY	
03	PREFECTURAL ROAD	
⋮ ⋮ ⋮	⋮ ⋮ ⋮	

FIG.7

LINK TABLE 1023

10232	10233	10234	10235	10236	10231
LINK ID	NODE COORDINATES	ROAD CATEGORY ID	LINK COST	CONNECTION LINK ID	
001	START : (x,y),END:(x,y)	01	LENGTH:**, TRAVELING TIME:**	START:**,END:**	
002	START : (x,y),END:(x,y)	01	LENGTH:**, TRAVELING TIME:**	START:**,END:**	
003	START : (x,y),END:(x,y)	01	LENGTH:**, TRAVELING TIME:**	START:**,END:**	
:	:	:	:	:	
:	:	:	:	:	
:	:	:	:	:	

7/30
FIG.8

BACKGROUND TABLE 1024

10242 BACKGROUND ID	10243 BACKGROUND CATEGORY ID	10244 COORDINATE VALUE STRING	10245 NAME
001	02	{(x0001,y0001),...,(x****,y****)}	CYUOSEN
002	03	{(x0005,y0005),...,(x****,y****)}	MIDORI PARK
003	01	{(x0100,y0100),...,(x****,y****)}	OO LAKE
⋮	⋮	⋮	⋮

10241

FIG.9

BACKGROUND CATEGORY TABLE 1025

10252 BACKGROUND CATEGORY ID	10253 CATEGORY NAME
001	WATER AREA
002	RAILWAY
003	PARK
⋮	⋮

10251

FIG.10

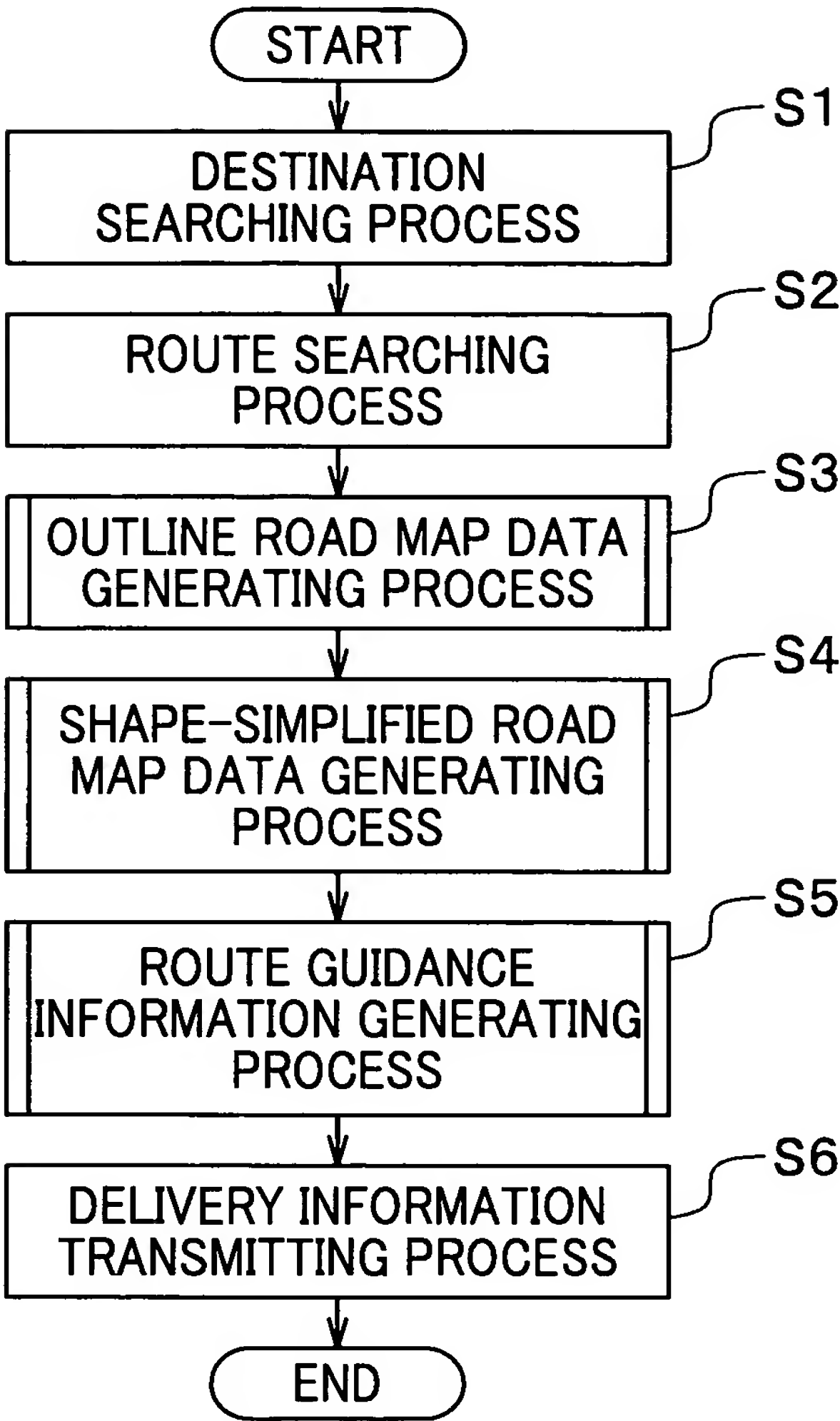
POI-LINK RELATING TABLE 1026

10262 RELATING ID	10263 POI ID	10264 LINK ID
0001	0020	102
0002	0030	101,105
⋮	⋮	⋮

10261

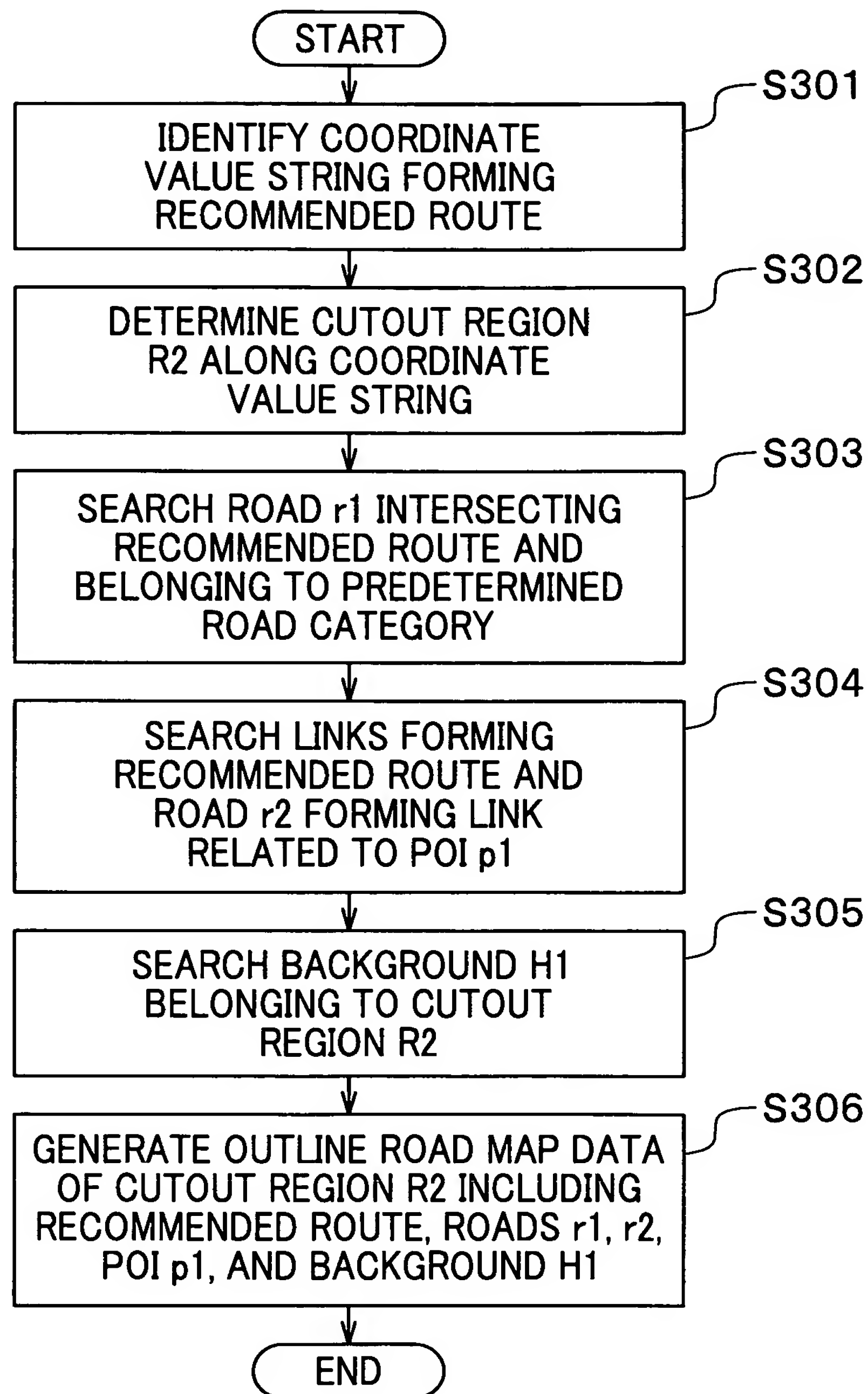
8/30
FIG. 11

GENERAL PROCESS

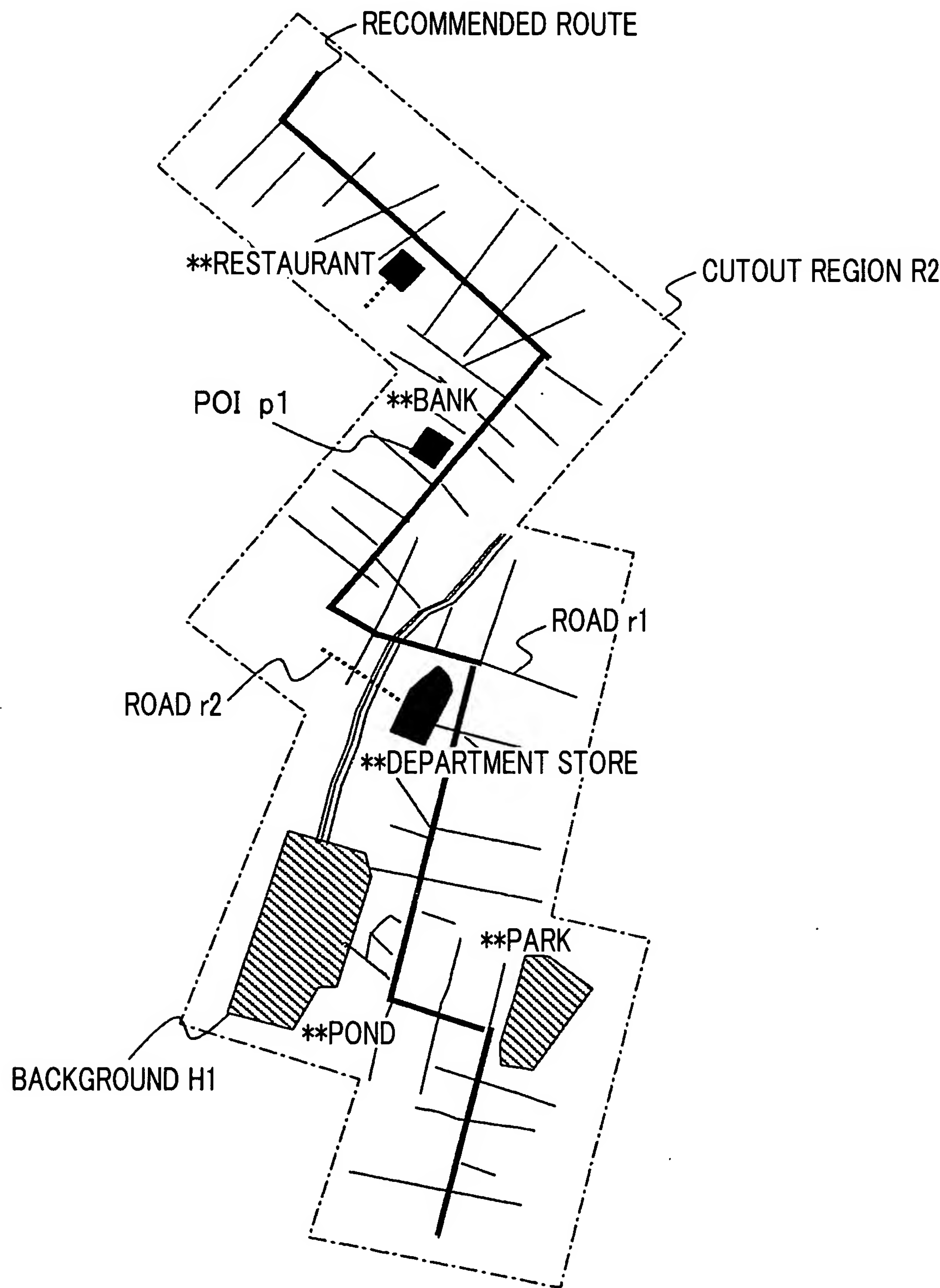


9/30
FIG. 12

OUTLINE ROAD MAP DATA GENERATING PROCESS

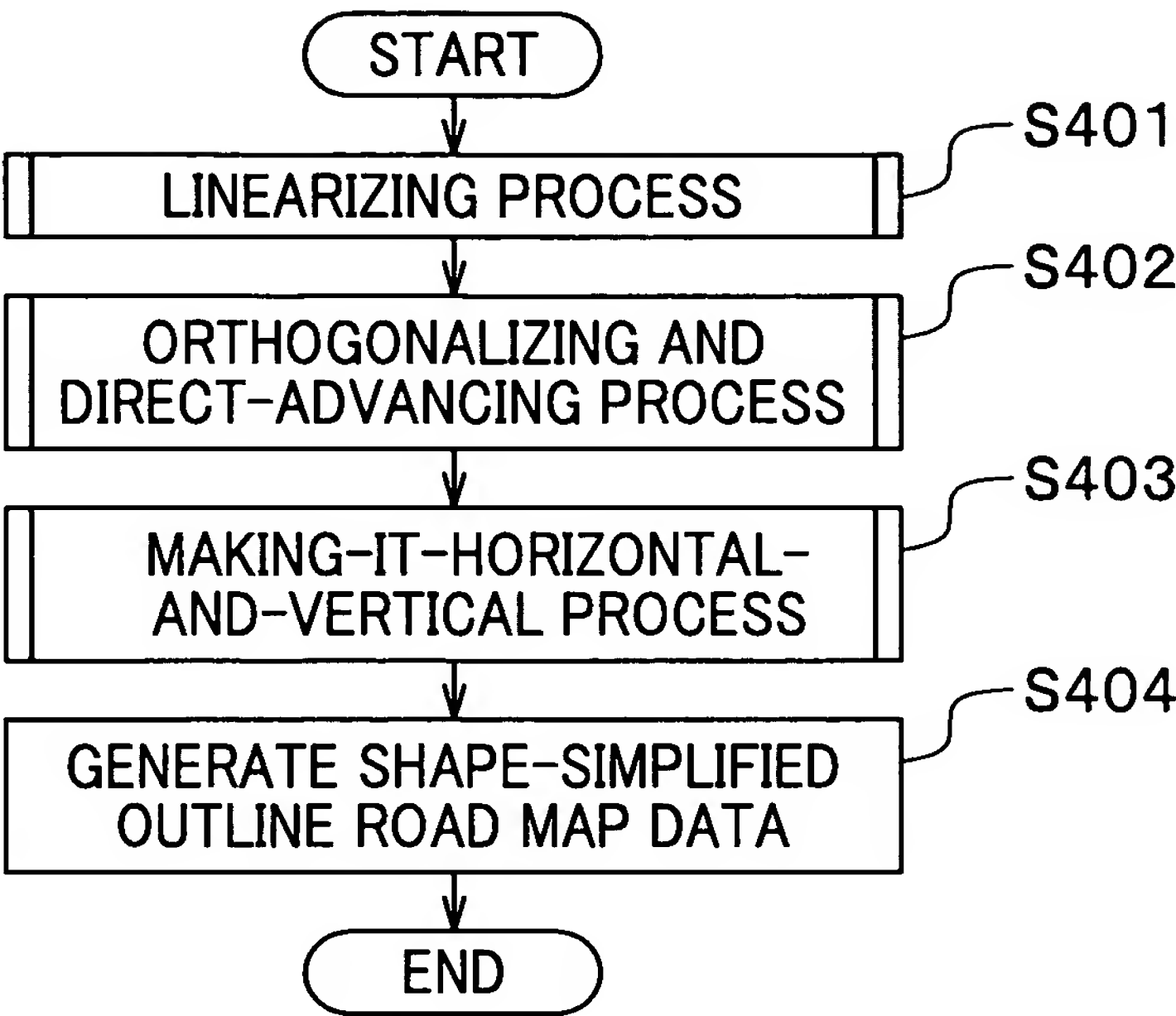


OUTLINE ROAD MAP



11/30
FIG. 14

SHAPE-SIMPLIFIED ROAD MAP DATA GENERATING PROCESS



12/30
FIG. 15

LINEARIZING PROCESS

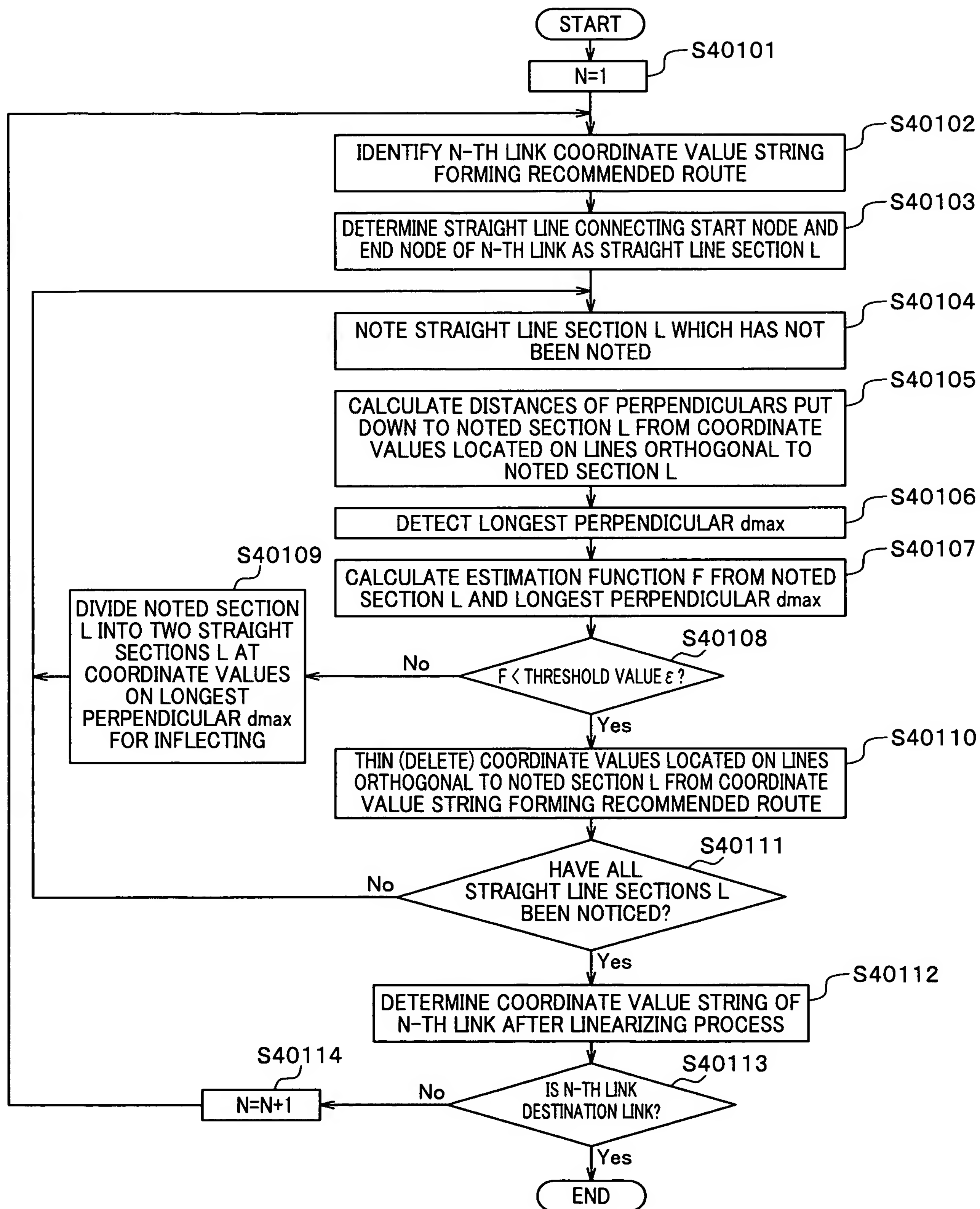
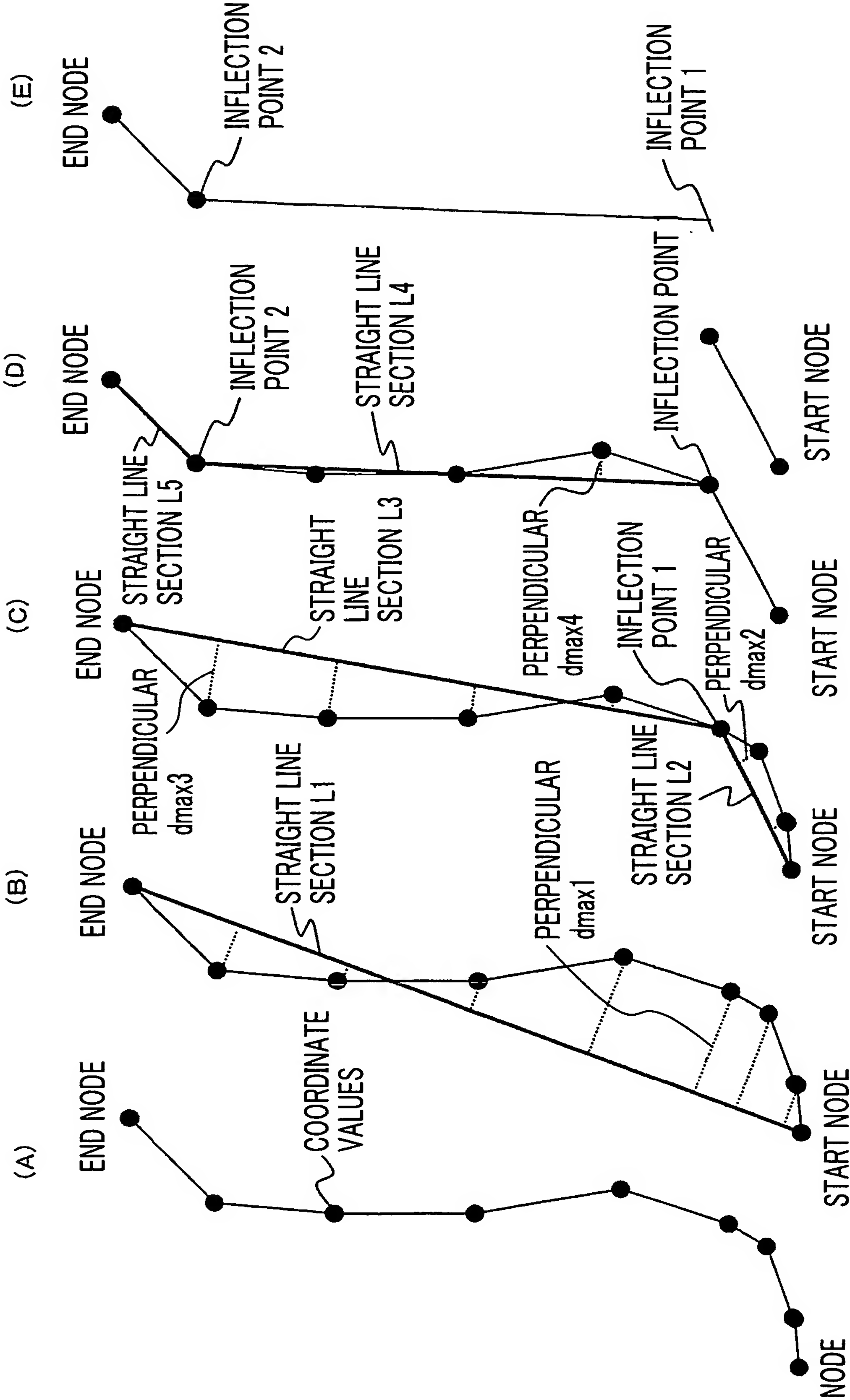


FIG.16



14/30
FIG. 17

ORTHOGONALIZING AND DIRECT-ADVANCING PROCESS

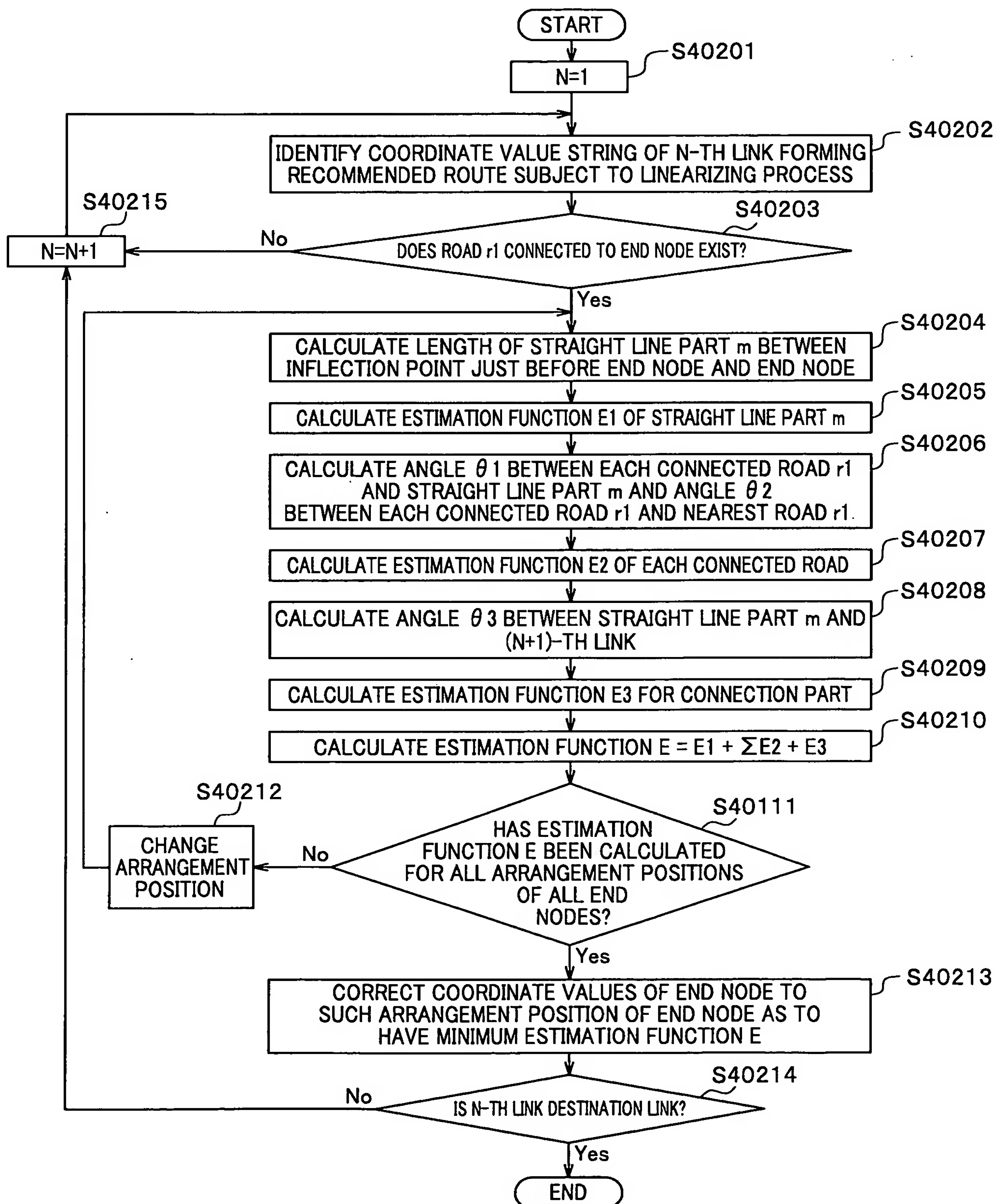
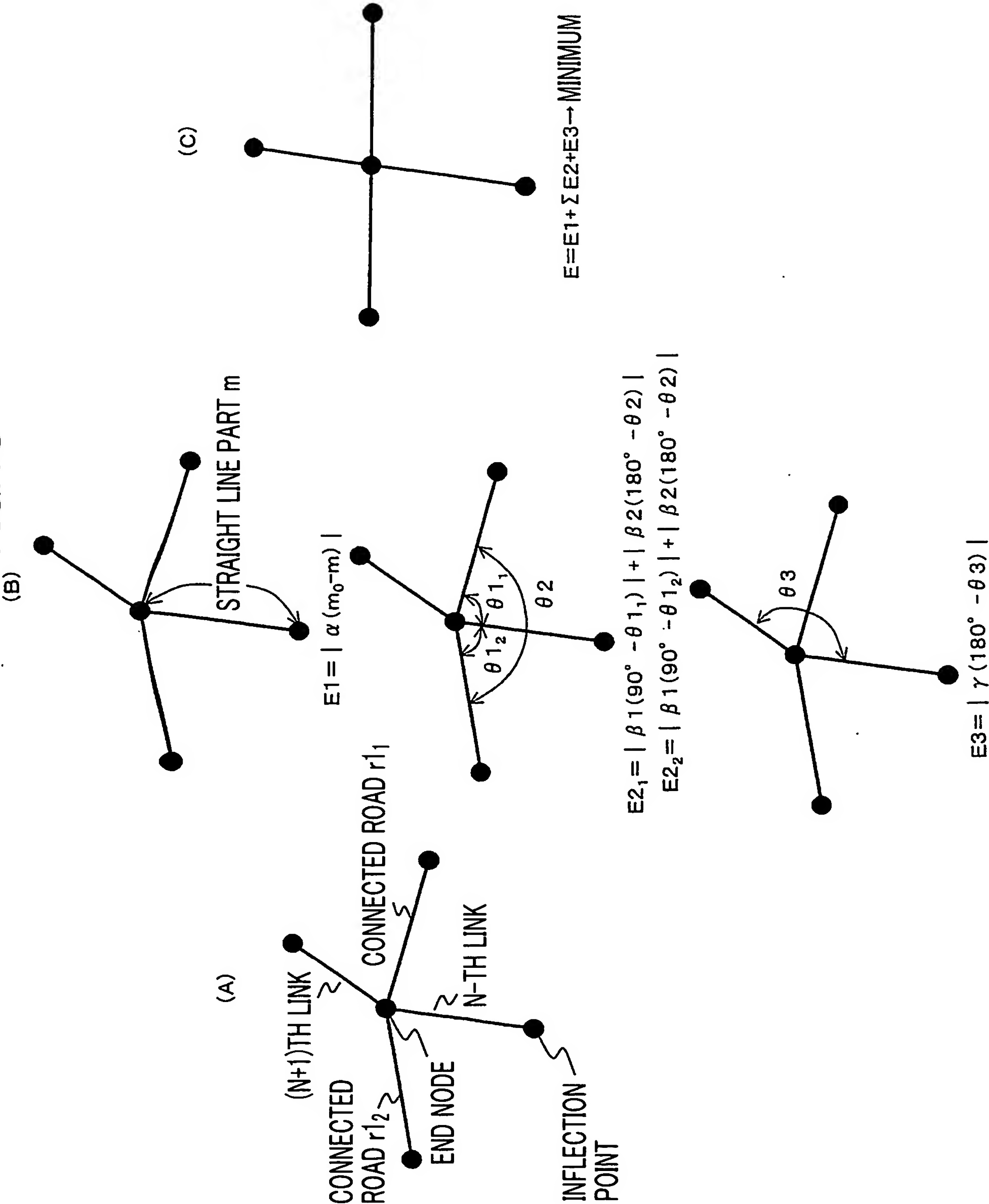


FIG.18



16/30
FIG. 19

MAKING-IT-HORIZONTAL AND VERTICAL PROCESS

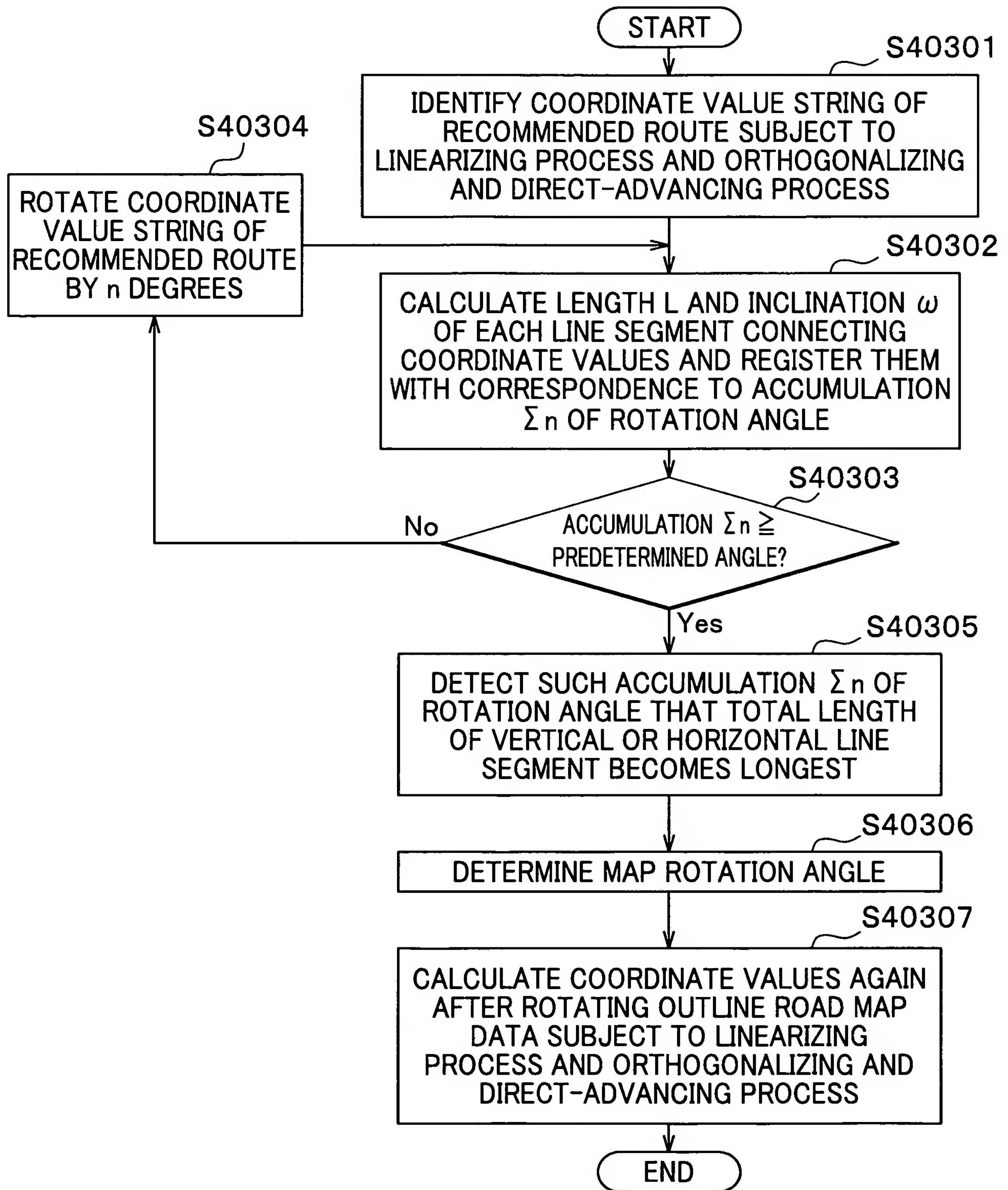
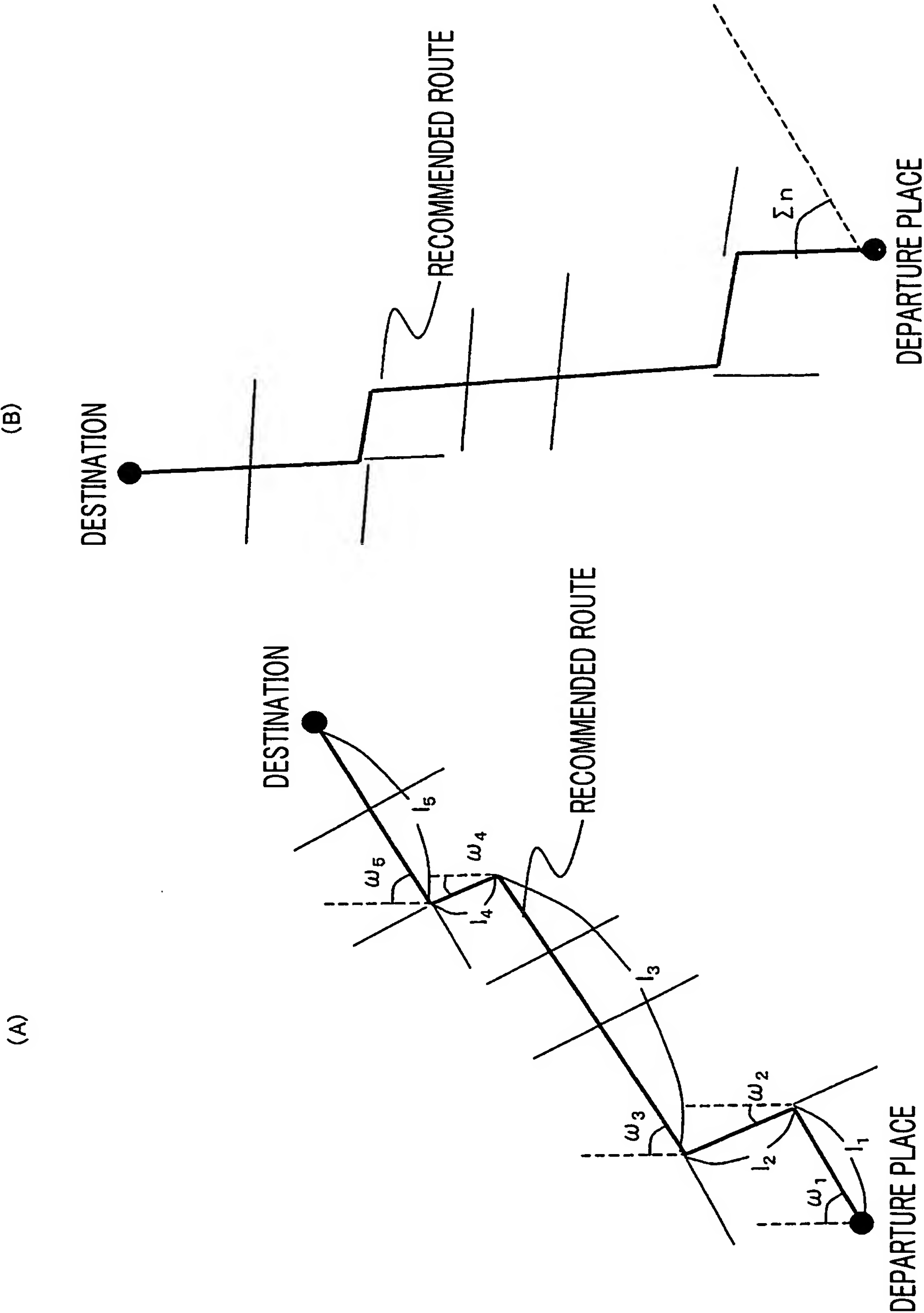
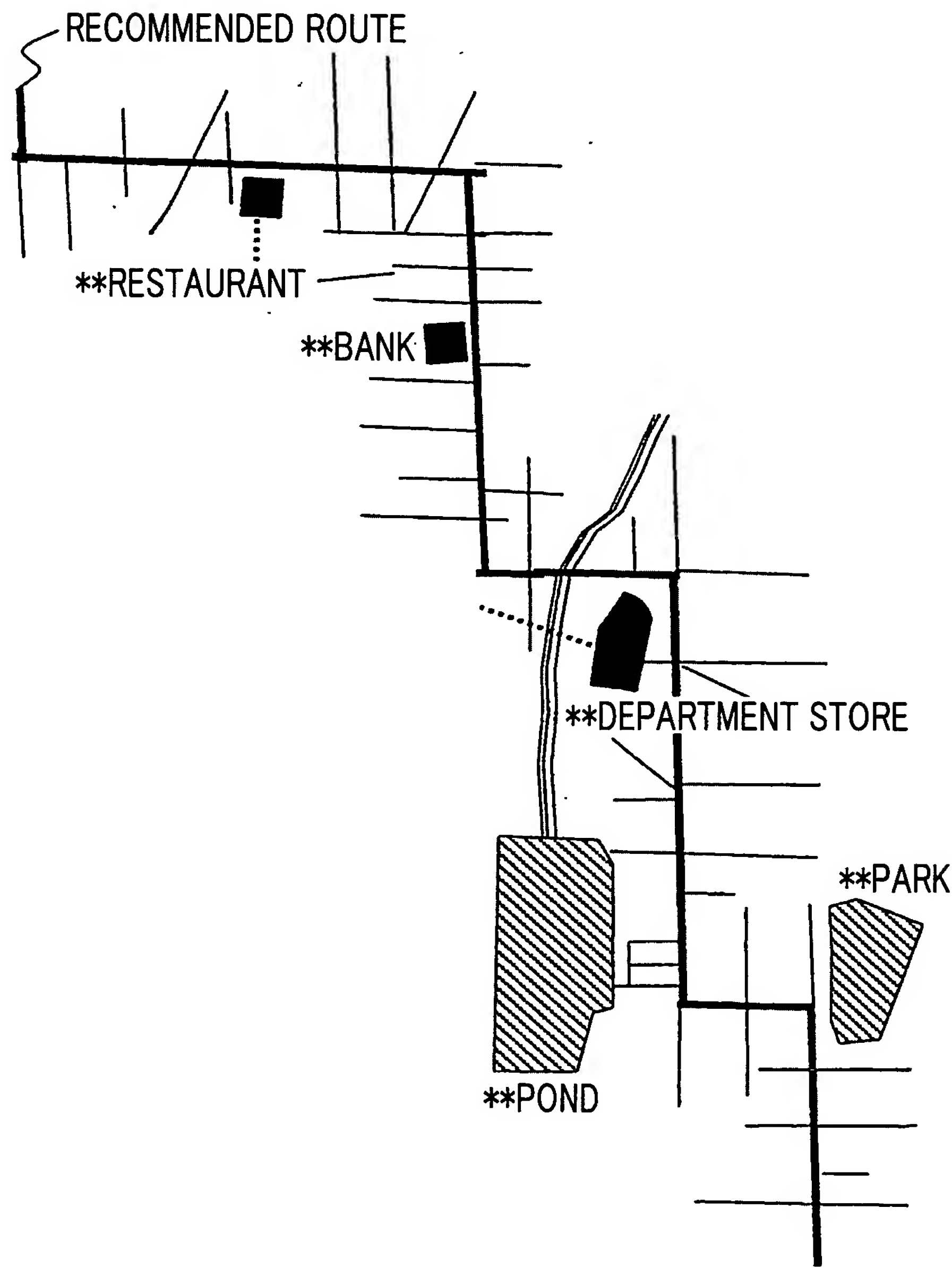


FIG.20

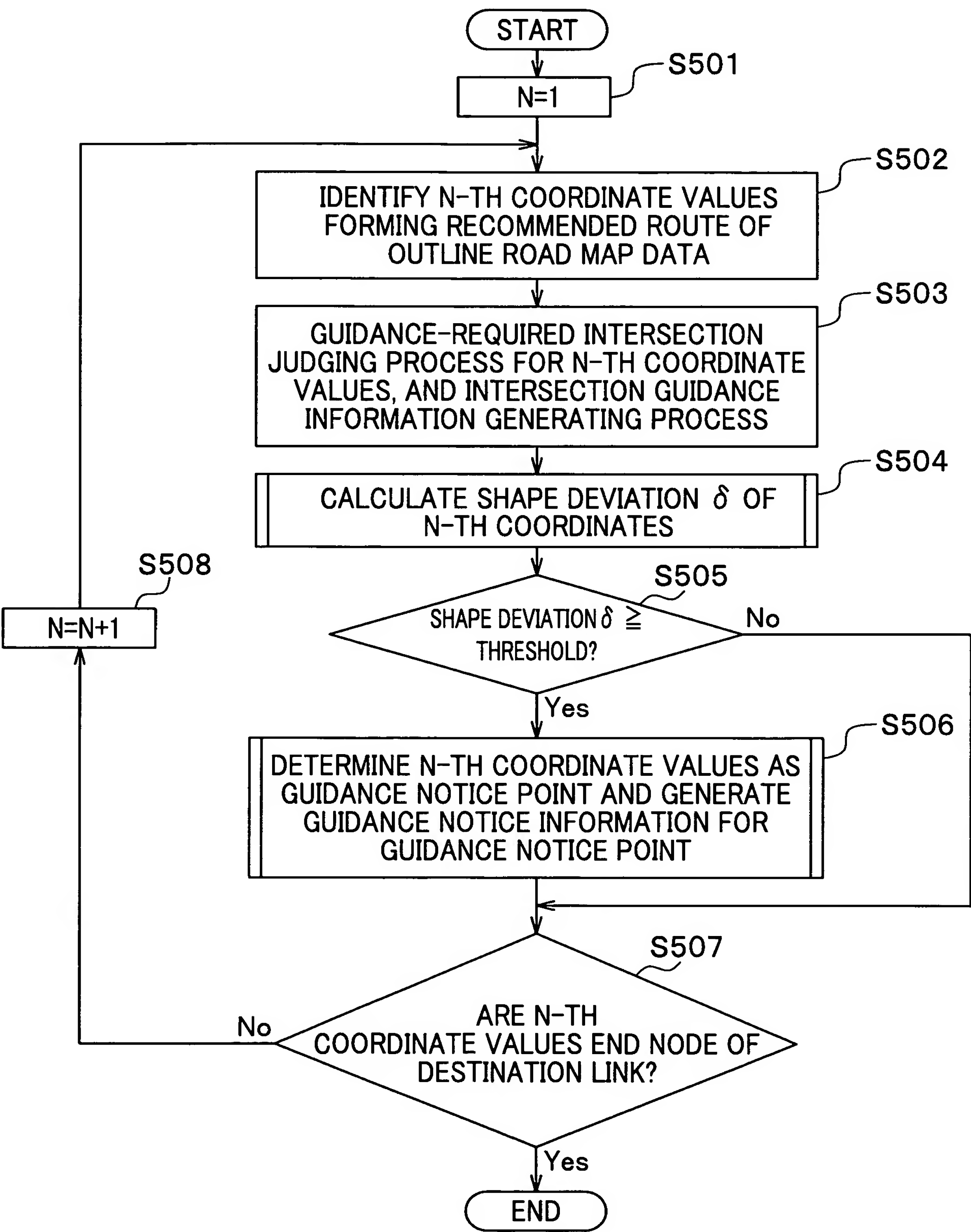


SHAPE-SIMPLIFIED ROAD MAP



19/30
FIG.22

ROUTE GUIDANCE INFORMATION GENERATING PROCESS



20/30
FIG.23

SHAPE DEVIATION CALCULATING PROCESS

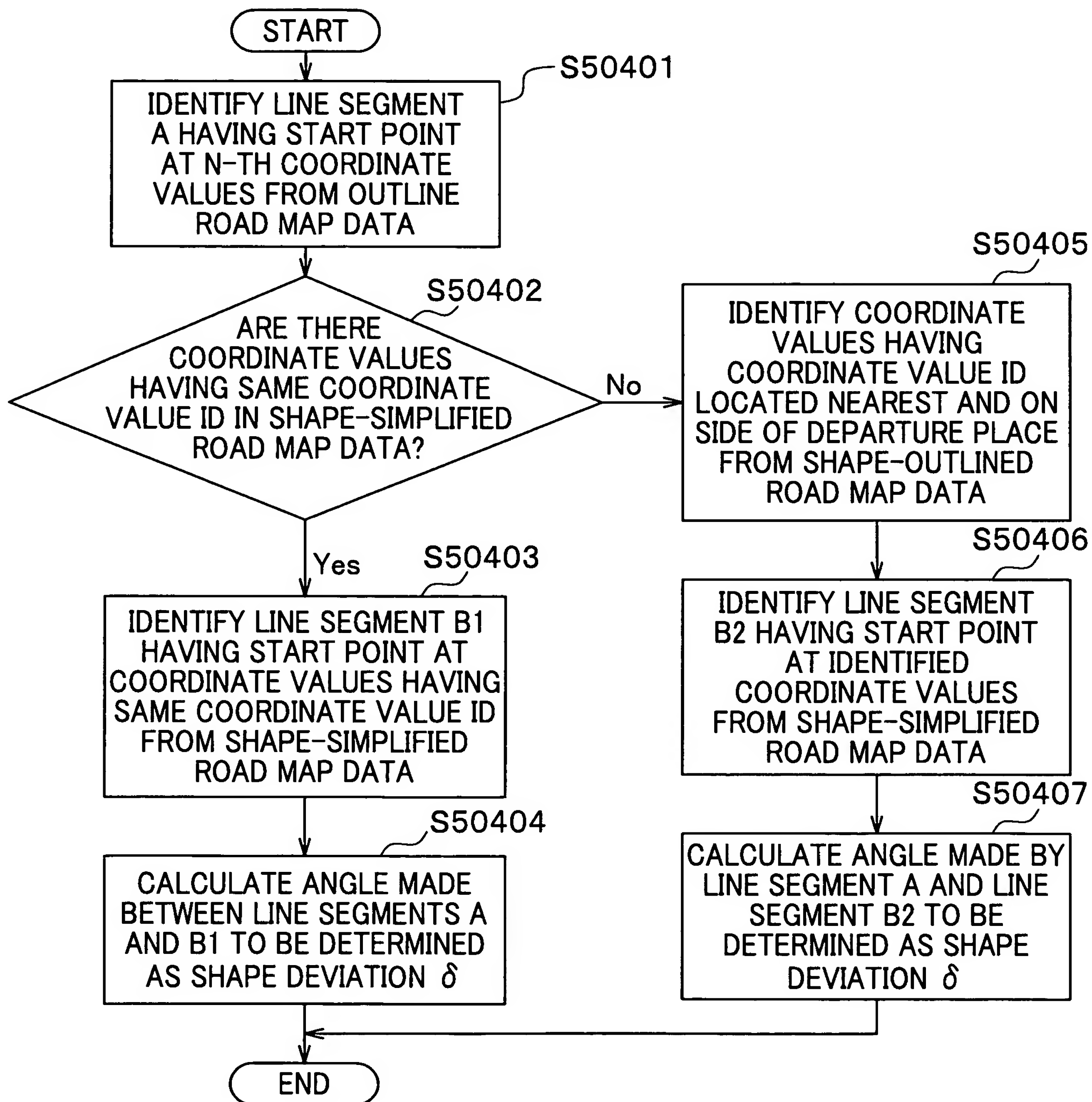
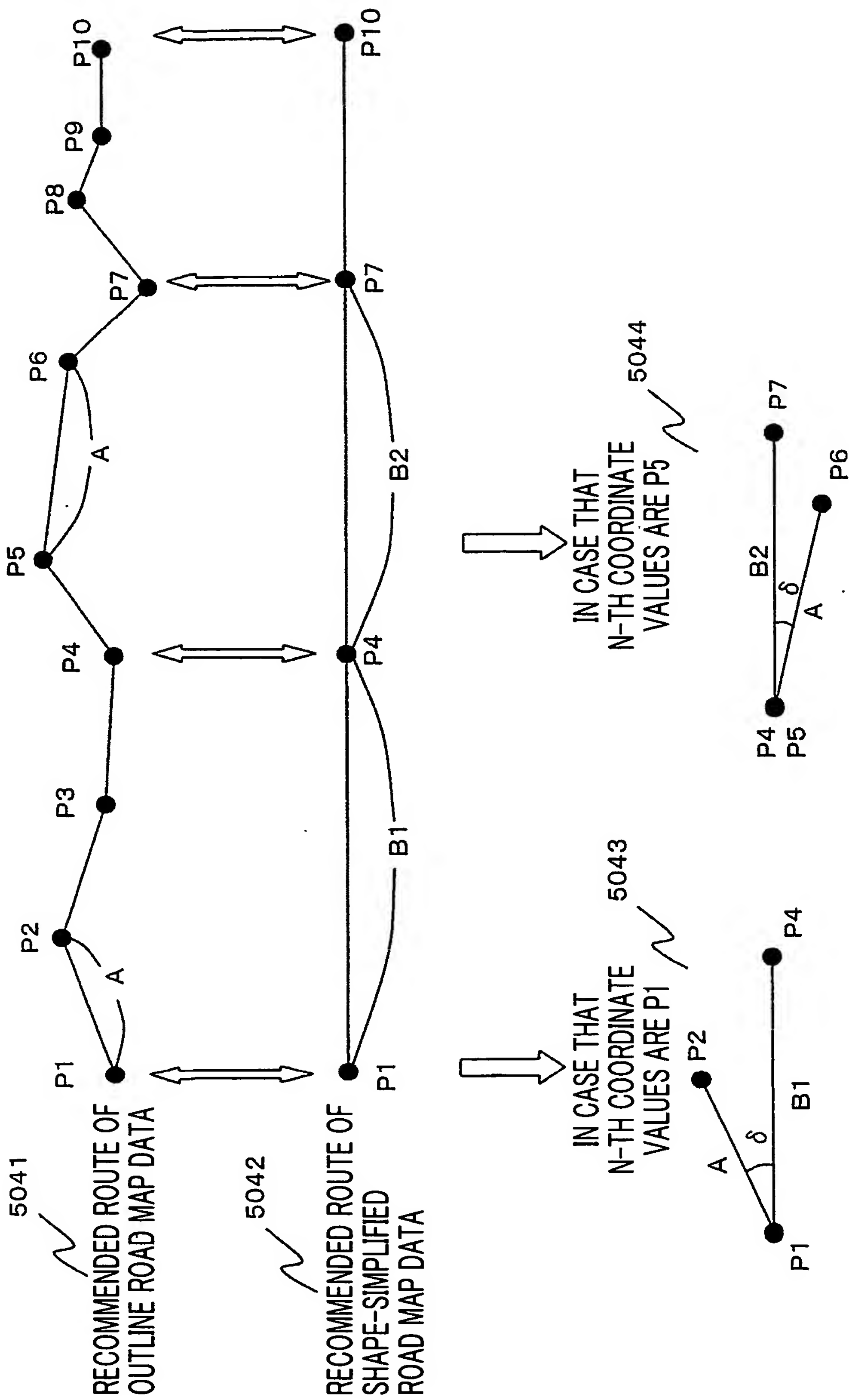


FIG.24



22/30
FIG. 25

GUIDANCE NOTICE INFORMATION GENERATING PROCESS

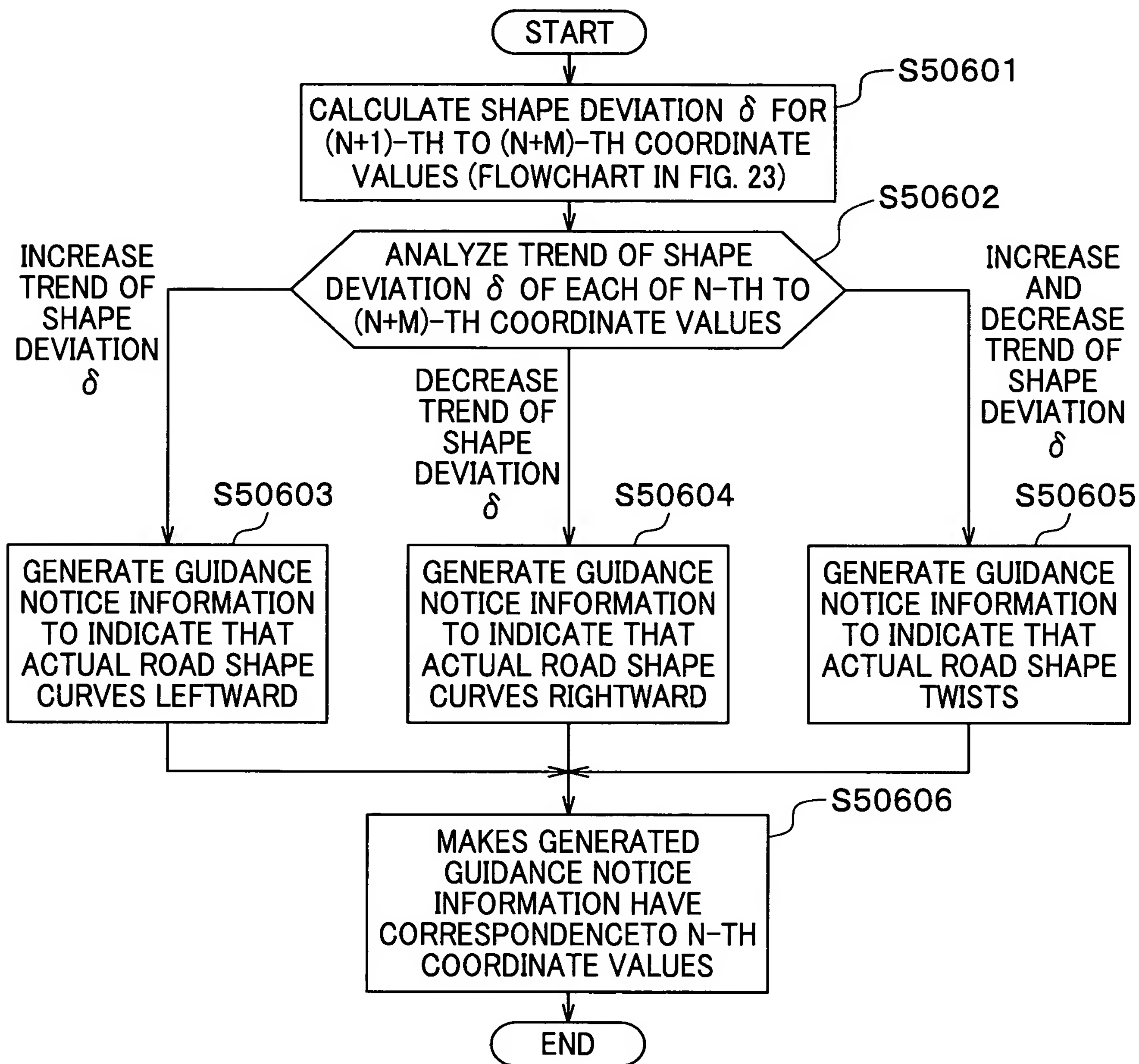
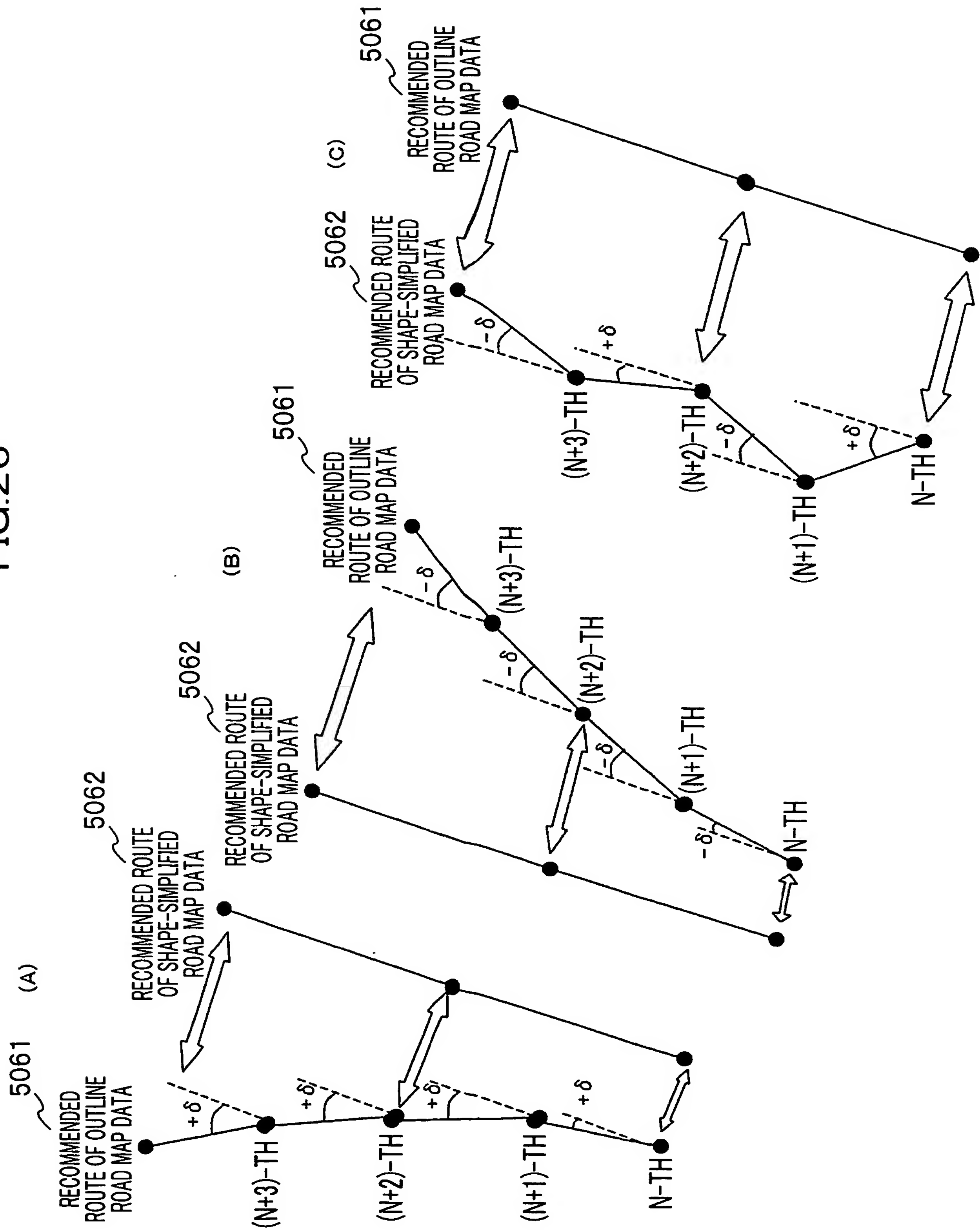
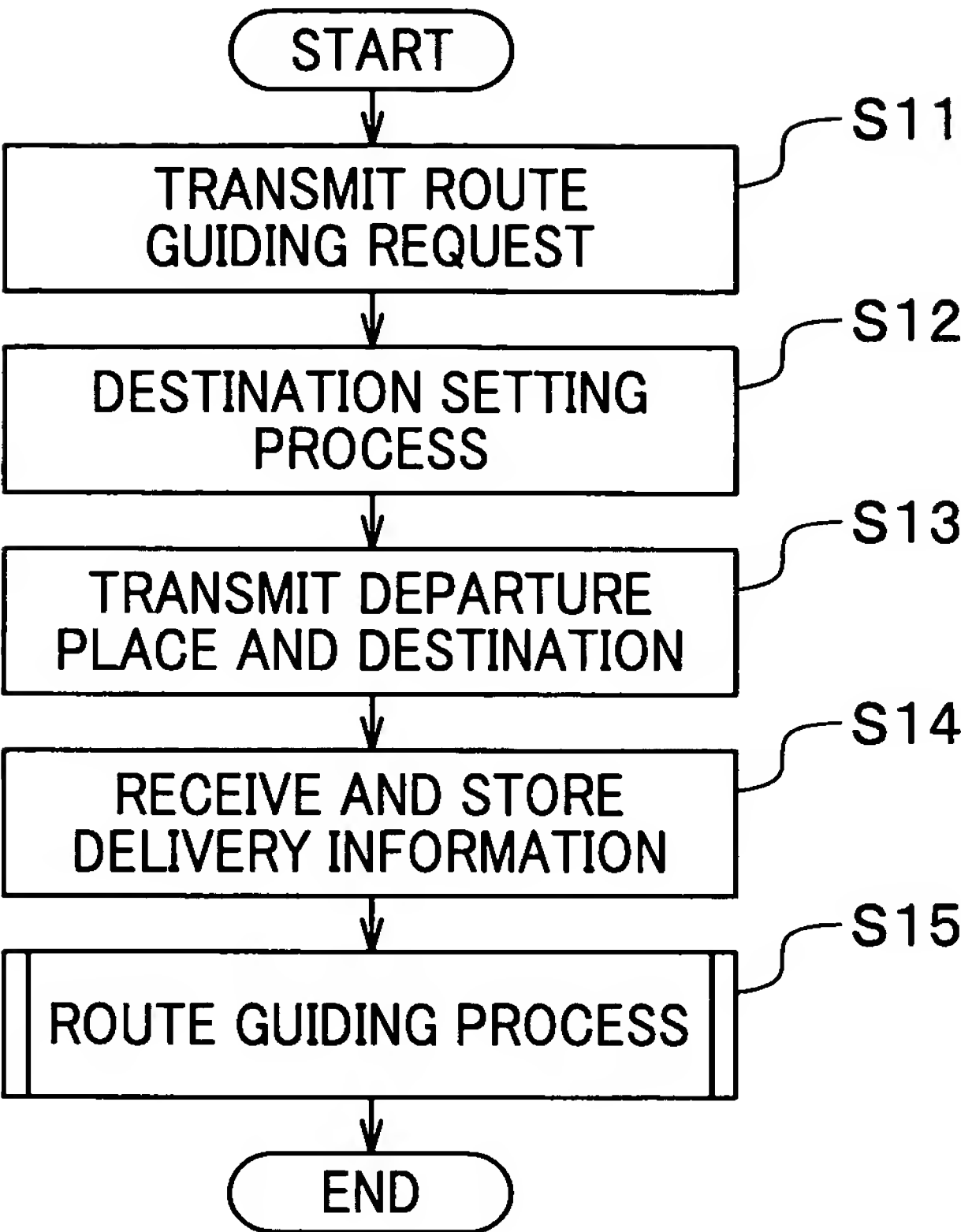


FIG.26

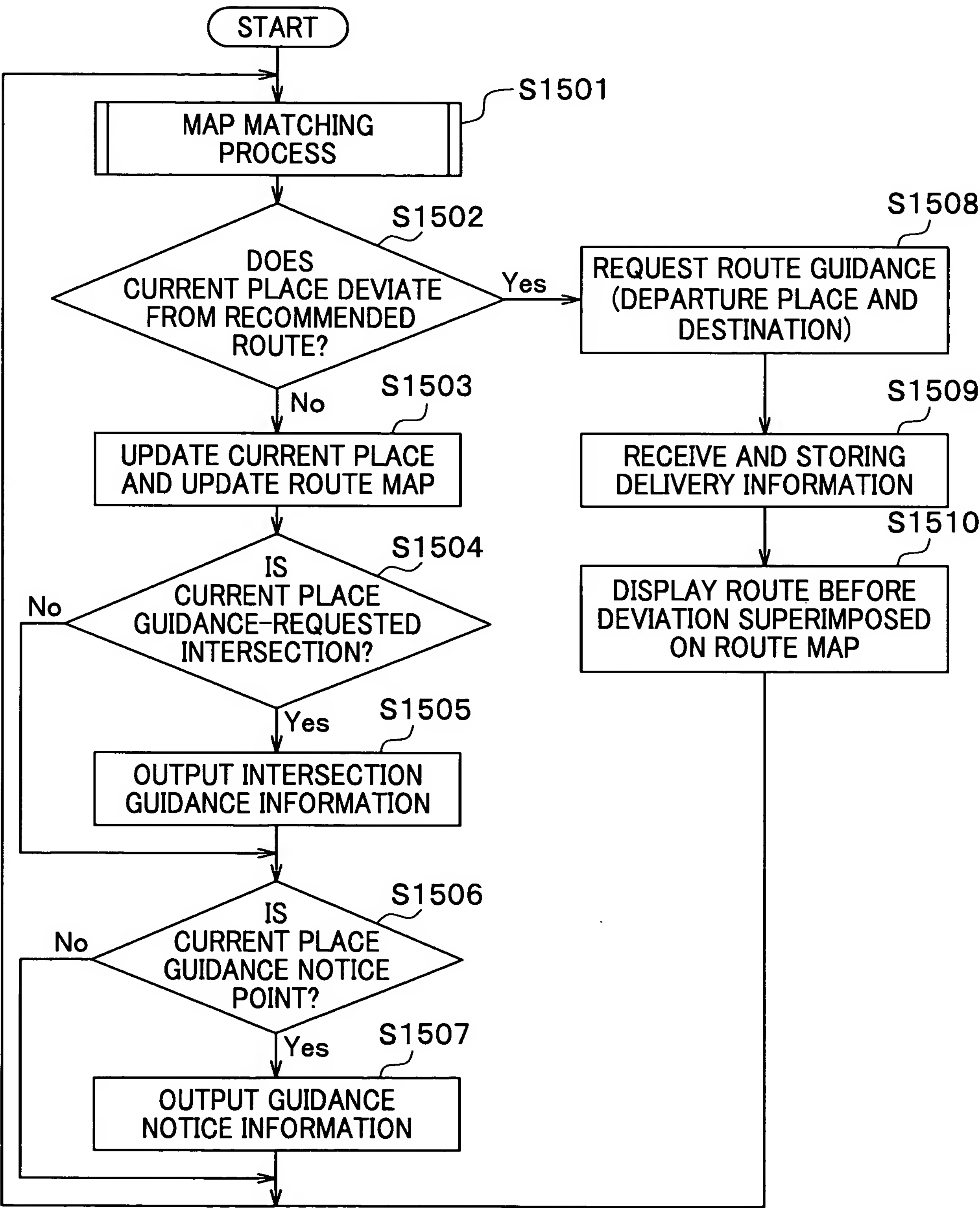


24/30
FIG.27

GENERAL PROCESS



ROUTE GUIDING PROCESS



26/30
FIG.29

MAP MATCHING PROCESS

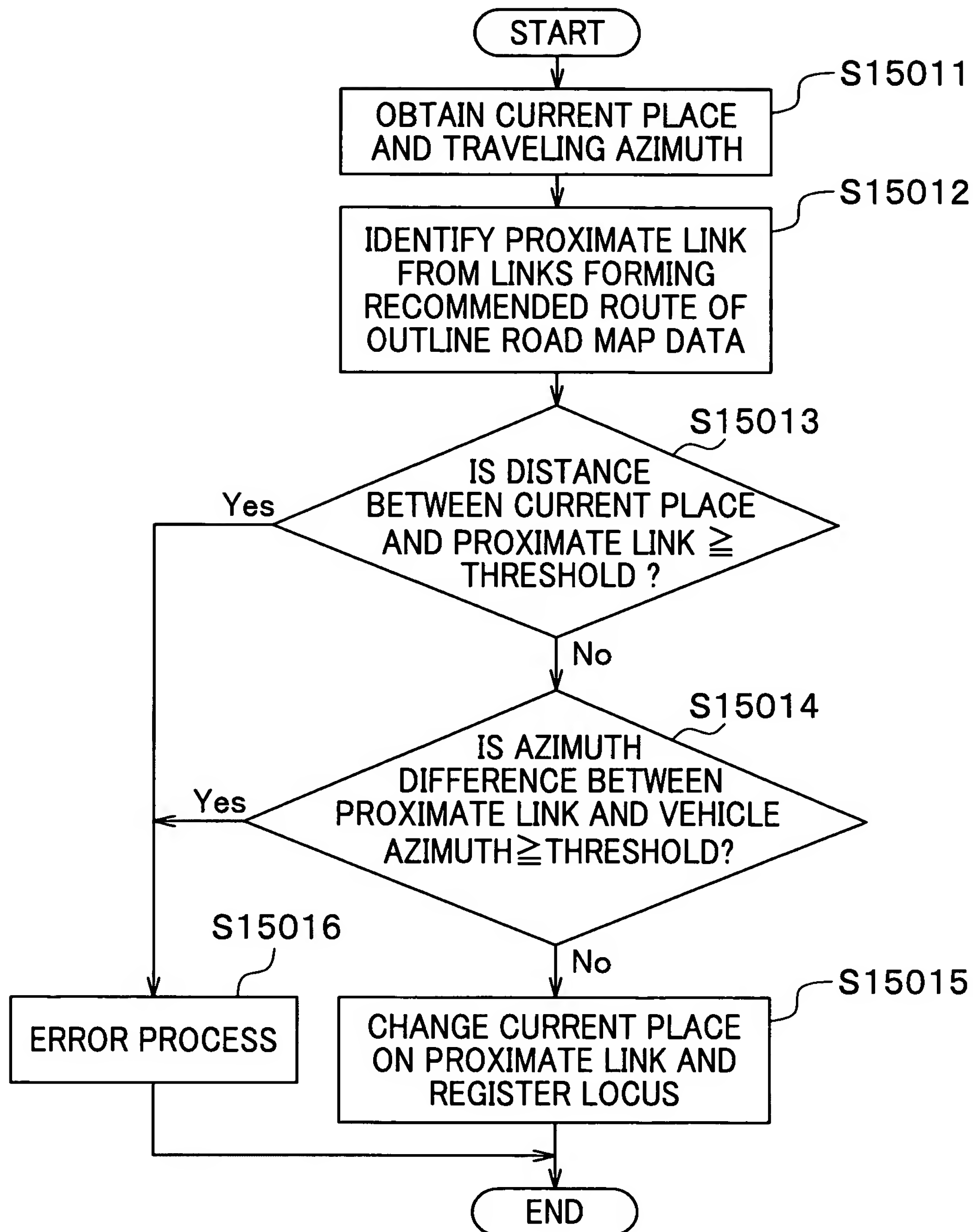


FIG.30

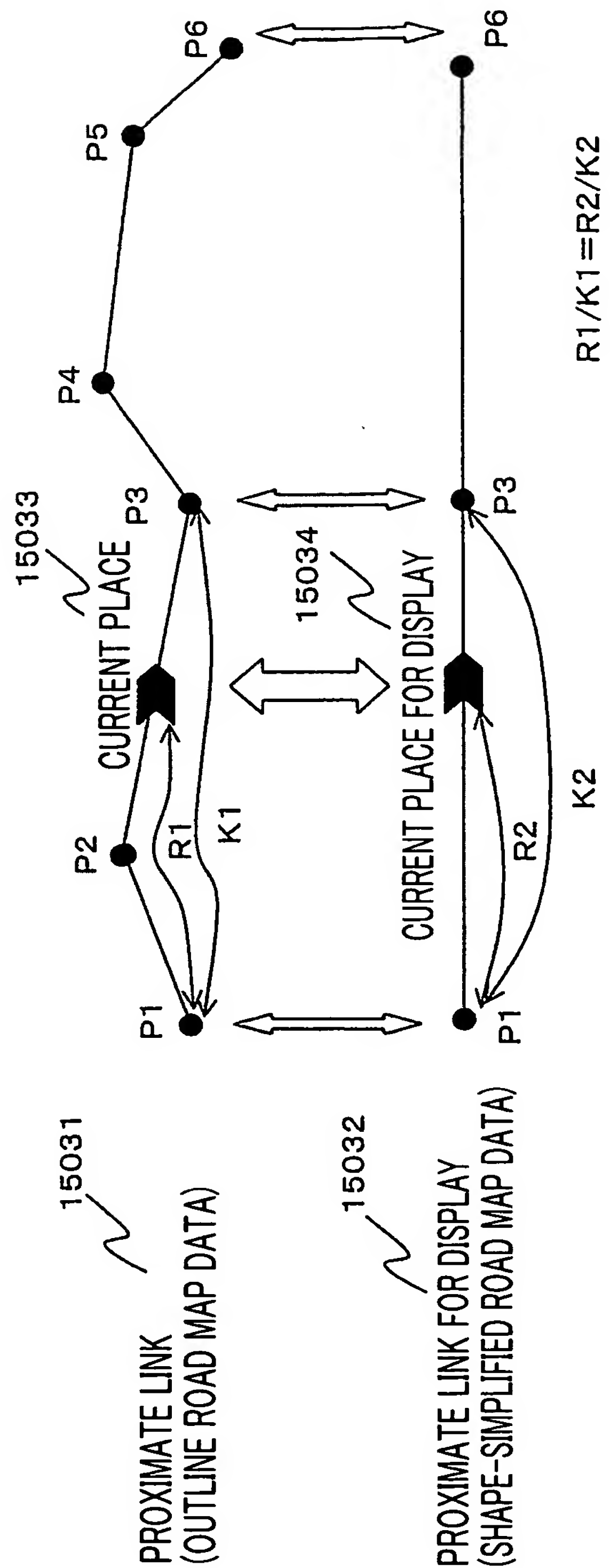
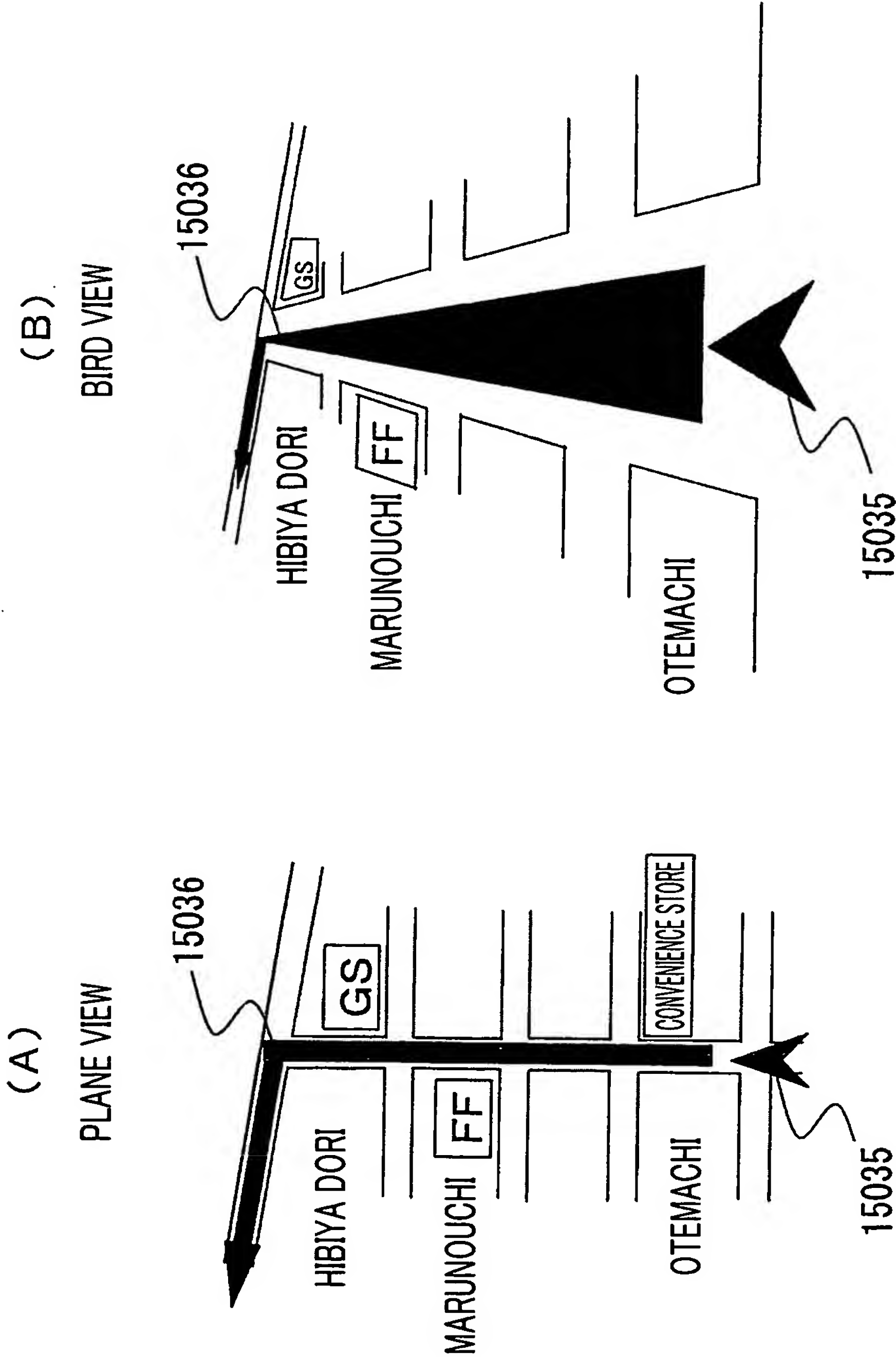


FIG.31



29/30
FIG.32

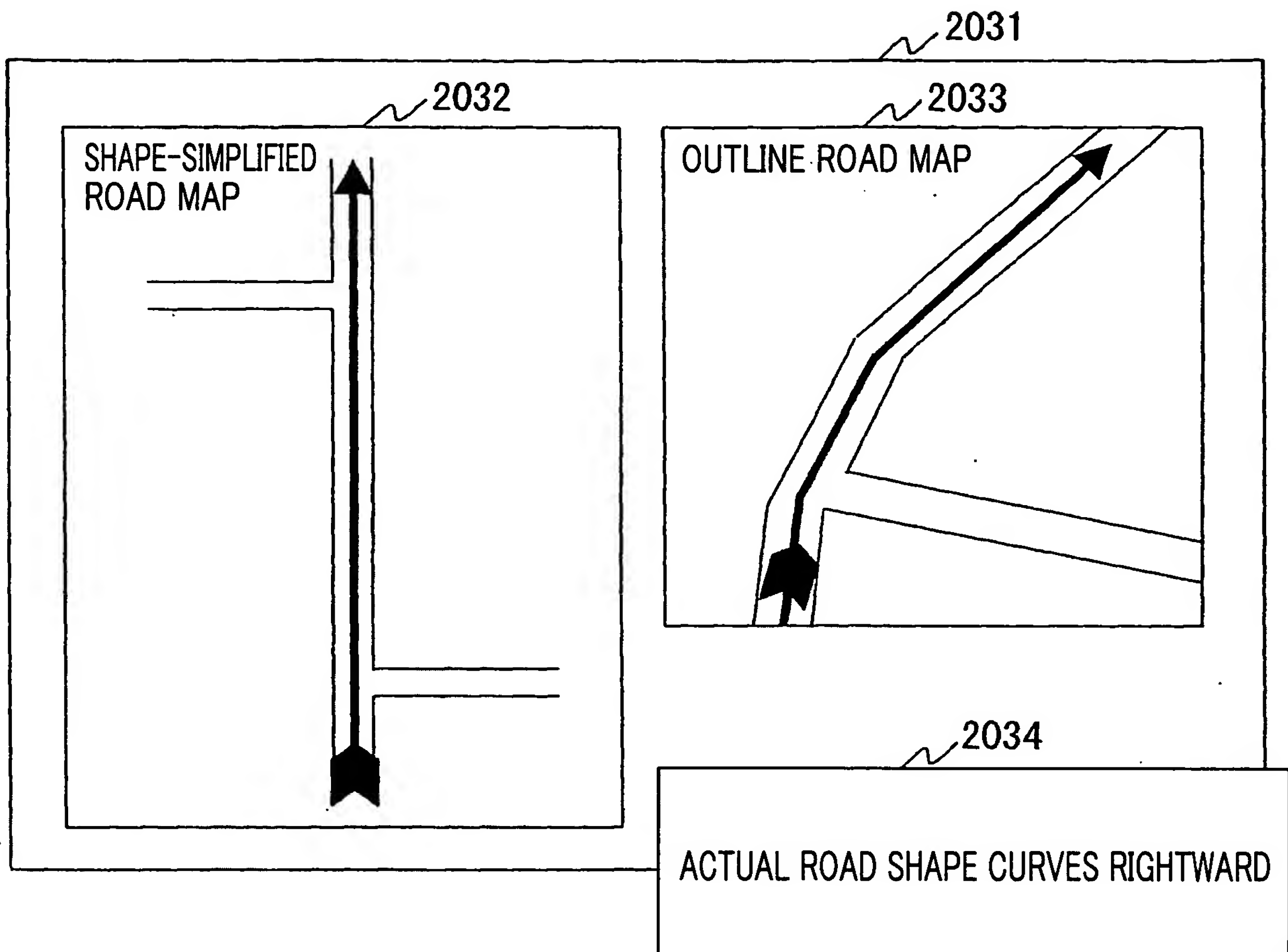
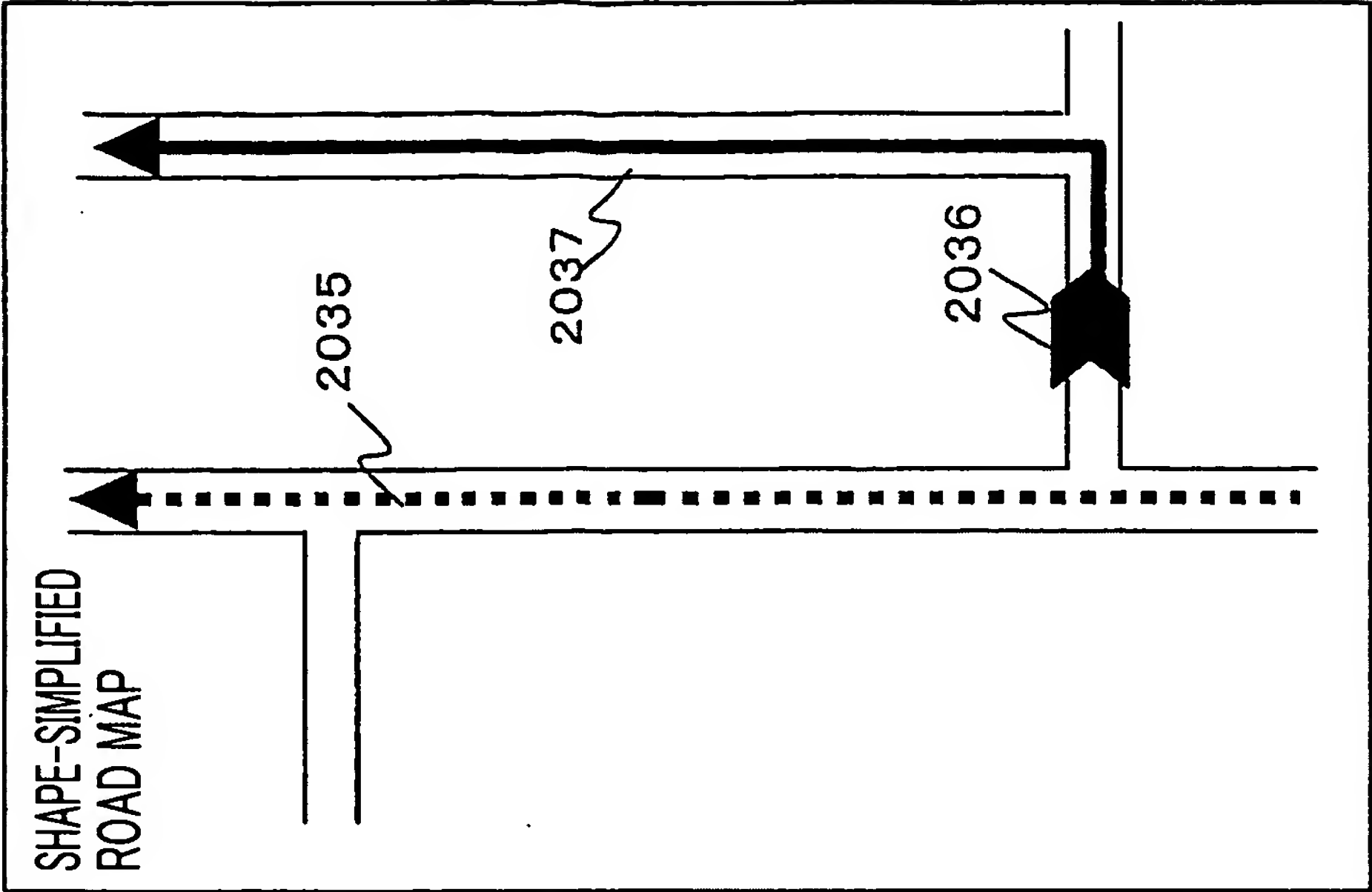


FIG.33

(B)



(A)

